

Work Order ID 81846

81846

Page 1

March-19-12 4:24:26 PM

Item ID: D205-634-141

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Replacement Skidtube

Start Date: 19/03/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 02/04/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: MLJ

Date: 12/03/20 Tooling:

Date:

Run Start *NR1*

QC:

Date: SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D2580-047	(DEO) revE								
100		0.00							
100	DOCUMENT CONTROL								
DC	Memo	0.00							
Document Control	Photocopy D205-634 bluefile & type labels per PPP D205-634-141	CHG003							

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Required Date: 02/04/2012 Req'd Qty: 1.00

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Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

110

0.00

110

Skidtubes

Skidtubes

Memo

0.00

1- Inspect mat'l D2500-1-190 for damage

2-Cut D2500-1-190 per Dwg D2580 if necessary Debur ends

3-Drill pilot holes using DT8149, drill #30 hole (3.630 REF) using DT8149 and SPOT drill #30 (5.338 & 5.985 REF) using DT8149. Open holes to finished size except for (4) AFT spot drilled holes as per dwg D2580 sheet 7.

4-Drill pilot holes using drill jig DT 8149 and open holes to finish size

5-Acid etch and Alodine tube per QSI 005 4.1

6- Install web as per dwg using sikaflex

A/R Sikaflex Batch #: 1120813

CPX 12-08-13

2/6/CF 12-03-27

2/6/CF 12-3-27

120

0.00

120

BENDING MACHINE - SKIDTUBES

CNC Bend 1

Memo

0.00

CNC Delta 100 Bender

1-Bend as per program D2580.C on CNC Bender and Folio FT 16

2-Cut tubes as per Dwg. D2580

3- Scribe batch# in aft end of tube

CT 12-3-28

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130

130

Skidtubes

Skidtubes

Memo

0.00

1-Deburr ends after cutting and remove bending marks. Prepare tube for welding
D2576-3 step remove alodine as required.2-Locating from most fwd saddle hole, drill most fwd wearplate hole using
DT9793 (10.832 REF) as per dwg D2580 sheet 7.3-Open run-on wearplate holes to finished size at locations (5.338/ 5.985/
10.832 REF) as per dwg D2580 sheet 7.

4-Drill pilot holes for aft cap using DT8215, Open to finished size.

140

140

QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00



12-3-29

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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1

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Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	Skidtubes	0.00							
150									
Skidtubes	Memo	0.00							
Skidtubes	1-Weld step D2576 as per Dwg. D2580 and QSI 004 A/R Aluminum Rod								
	2-Touch up alodine on run on wearplate holes prior to swaging								
	3- Insert D4202-1 spacer, swage as per QSI002 and trim/ grind flush per QSI002 and as per dwg								
160	QC10- Inspect visual per QSI004- ground welds	0.00							
160									
QC	Memo	0.00							
Quality Control									
170	QC5- Inspect part completeness to step on W/O	0.00							
170									
QC	Memo	0.00							
Quality Control									

made by

BE R/3/30

BB/HG-123-30

Sizkelor

Sizkelor

W/O:		WORK ORDER CHANGES					
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Required Date: 02/04/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

180

Pressure Wash per QSI005 4.3

0.00

180

HandFinish

Memo

0.00

Hand Finishing

And realodine tube as per QSI 005

1X/1M/12/04/04

190

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

190

Powdercoat

Memo

0.00

Powder Coating

START TIME:

OVEN TEMPERATURE:

FINISH TIME:

9h10

320°F

9h40

m120222

1 & (SP) 12/04/09

200

QC3- Inspect Part Finish

0.00

200

QC

Memo

0.00

Quality Control

1X f 11/04/16

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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1

Cust Item ID:

Required Date: 02/04/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

210

Assemble as per dwg

0.00

210

HandFinishing

HandFinish

Memo

0.00

Hand Finishing

1-Install inserts & wearplates as per Dwg. D2580. Use a drop of Sikaflex on
insert holes before installing wearplatesA/R Sikaflex-291 88121221Sikaflex expire date: 1310

2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594

3- Install aft cap as per dwg

4- Wing walk as per dwg Batch# 88121221

220

QC5- Inspect part completeness to step on W/O

0.00

220

QC

Memo

0.00

Quality Control

Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for
Foreign objects per QSI 024

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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N900040100

Setup Start ***NS1***

Revision ID:

Item Name: Replacement Skidtube

Stop ***NS2***

Start Date: 19/03/2012 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 02/04/2012 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

230

230

Packaging

Packaging

0.00

Memo

0.00

Packaging

Identify and pack for shipping as per PPPD205-634-141

Location:

PPP Rev:

PPP 88 112

Per 4/12 @

240

240

QC

Quality Control

QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

MLW 12/04/18

12-04-18

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Picklist Print

March-19-12 4:24:29 PM

Page 1

Work Order ID: 81846

81846

Parent Item: D205-634-141

D205-634-141

Parent Item Name: Replacement Skidtube

Start Date: 19/03/2012

Required Date: 02/04/2012

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP RevA 11.09.14 new issue EC verified by:DD
12.01.23 AS PER ECN11-684 DD VERF:EC

IPP REV:B

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D2500-1-190		Manufactured	No			110	Each	112.0000	1	1			
-------------	--	--------------	----	--	--	-----	------	----------	---	---	--	--	--

D2500-1-190

Ext'n -1" Beam Tube 4"

**

12-03-27

Location

Loc Qty

Loc Code

HALL

112

74777

32

80061

80

D2596

Manufactured No

110

Each

3.0000

1

D2596

Web, 205 Skidtube

**

12-03-27

Location

Loc Qty

Loc Code

LG

3

B 81846

80185

2

80820

1

D4202-1

Manufactured No

150

Each

238.0000

24

D4202-1

Spacer

**

24 12-3-29

Location

Loc Qty

Loc Code

LG

5

77727

5

LG002

233

78806

233

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Page 2

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81846

Parent Item: D205-634-141

D205-634-141

Parent Item Name: Replacement Skidtube

Start Date: 19/03/2012

Required Date: 02/04/2012

Start Qty: 1.00

Required Qty: 1.00

AN4-45A

Purchased

No

210

Each

64.0000

8

8

AN4-45A

Bolt

**

M 121162 (x8) JU 12/04/16

Location

Loc Qty

Loc Code

ST350A

64

118926

64

D2570

Manufactured

No

210

Each

327.0000

16

16

D2570

Bushing

**

JU 12/04/16

Location

Loc Qty

Loc Code

ST011

327

72960

41

78586

19

78587

67

79493

200

X16

D4406-041

Manufactured

No

210

Each

4.0000

1

1

D4406-041

Fwd Wearplate Assembly

**

B 80756 (x1) JU 12/04/16

Location

Loc Qty

Loc Code

Return2012

2

74147

2

WA

2

80794

2

D4406-043

Manufactured

No

210

Each

4.0000

1

1

D4406-043

Aft Wearplate Assembly

**

B 80757 (x1) JU 12/04/16

Location

Loc Qty

Loc Code

Return2012

2

74148

2

WA

2

80795

2

March-19-12 4:24:29 PM

Shop Packet Print

Page 2

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Parent Item: D205-634-141

Parent Item Name: Replacement Skidtube

81846

D205-634-141

Start Date: 19/03/2012

Required Date: 02/04/2012

Start Qty: 1.00

Required Qty: 1.00

MS21042-4

Purchased

No

210

Each

1,248.000

8

8

MS21042-4

USE MS21042L4

**

94

12/04/16

Location

Loc Qty

Loc Code

ST299

1248

100743

9

119124

1000

5389

66

5461

3

6844

19

7690

24

8182

115

9063

8

9229

4

x8

D2576-3

Manufactured

No

150

Each

46.0000

1

1

D2576-3

Step (maching detail)

**

8E12/03/30

Location

Loc Qty

Loc Code

LG

46

70883

1

74136

45

1

D2855

Manufactured

No

210

Each

50.0000

1

1

D2855

Cap

**

94

12/04/16

Location

Loc Qty

Loc Code

FP002

50

65519

2

73347

30

75074

18

x1

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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Parent Item: D205-634-141

D205-634-141

Parent Item Name: Replacement Skidtube

Start Date: 19/03/2012

Required Date: 02/04/2012

Start Qty: 1.00

Required Qty: 1.00

AN3-5A Purchased No

210 Each 1,082.000 2 2

AN3-5A

Bolt

**

12/04/16

Location

Loc Qty

Loc Code

ST350

1082

115371

46

117423

124

118626

212

119355

200

120187

500

12

AN960JD10L NAS1149D0332J Purchased No

210 Each 0.0000 2 2

AN960JD10L

Washer

**

12/04/16 (x2) 12/04/16

D2594-3 Manufactured No

210 Each 2,834.000 8 8

D2594-3

O-Ring, 205 Skidtube

**

12/04/16

Location

Loc Qty

Loc Code

FP001

2834

65518

41

79496

984

79573

50

79755

1759

12

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D205-634-141

Start Date: 19/03/2012

Required Date: 02/04/2012

Start Qty: 1.00

Required Qty: 1.00

D2594-1

Manufactured No

210

Each

411.0000

8

8

D2594-1

Plug, 205 Skidtube

**

Handwritten: *12/04/12*

Location

Loc Qty

Loc Code

FP001

150

73401

30

74442

34

74869

24

77035

62

FP-A

261

73401

0

78590

261

Handwritten: *yg*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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NOTE: Date & initial all entries

LIST OF MATERIALS					
ITEM	QTY -041	QTY -045	QTY -047	PART NUMBER	DESCRIPTION
1	X			D2580-041	SKIDTUBE ASSEMBLY
2		X		D2580-045	SKIDTUBE ASSEMBLY
3			X	D2580-047	SKIDTUBE ASSEMBLY
4	1	1	1	D2500-1-190	EXTRUSION
5			16	D2570	BUSHING
6	1	1	1	D2578-3	STEP
7	20	24	25	D2579	SPACER
8	16	16	8	D2594-1	PLUG
9	16	16	8	D2594-3	O-RING
10	1	1	1	D2596	205 WEB
11	1	1	1	D2855	AFT CAP
12	1	1		D3564-5	WEARSHOE
13	1	1		D3564-9	WEARSHOE
14	1	1		D3564-11	WEARSHOE
15	1	1		D3564-13	WEARSHOE
16	2	2		D3566-1	GASKET
17	1	1		D3566-5	GASKET
18	1	1		D3566-13	GASKET
19			1	D4406-041	WEARPLATE ASSEMBLY
20			1	D4406-043	WEARPLATE ASSEMBLY
21	50	50		ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
22	50	50		AN3C4A	BOLT
23	2	2	2	AN3-5A	BOLT
24			8	AN4-45A	BOLT
25	50	50		NAS1149C0332R	WASHER (AN960C10L)
26	2	2	2	NAS1149D0332J	WASHER (AN960JD10L)
27			8	MS21042-4	NUT (OR MS21042L4)

GENERAL NOTES:

- MATERIAL: N/A
- FINISH: CHEMICAL CONVERSION PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB
POWDER COAT ASSEMBLY (-041/-047) GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.2
POWDER COAT ASSEMBLY (-045) GREEN SANDEX (REF 4.3.5.8) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4.
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: NONE
- WEIGHT: D2580-041 = 34.5 lbs
D2580-045 = 34.5 lbs
D2580-047 = 37.7 lbs
- WELDING PER DART QSI 004.
- INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- USE DART DRILL TEMPLATE DT8217 & DT8937 ONLY FOR D2580-041/-045 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTIONS B-B AND F-F (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND NAS1149C0332R WASHERS WITH SIKAFLEX-241/291.
- INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES FOR D2580-041/-045 AND 8 PLACES FOR D2580-047)
- IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

DEO ATTACHED

RELEASED
2011-08-29

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT

WITHOUT NOTICE
WORK ORDER

NO. 81876 MLC

12/03/20

E	ADD D2580-047 (ZN C4-7) AND D2580-7 (ZN B3-8); INCLUDED DEO D2580-D-1; REFORMATTED DRAWING TO CURRENT STANDARDS; DT8217 & DT8937 WAS TD2577-205 (ZN C4-1)	RF	11.06.21
D	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/ 9183	PH	07.04.05
C	REDRAWN, INCLUDED DEO 9094/ 9097	CP	98.08.26
B	AS MANUFACTURED	DS	96.12.02
A	NEW ISSUE	DS	96.09.16
REV.	DESCRIPTION	BY	DATE
DESIGN	#	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	MP		
MFG. APPR.	DS		
APPROVED	MP		
DE APPR.	#	DRAWING NO. D2580 TITLE 205 SKIDTUBE ASSEMBLY SCALE NTS	
DATE	11.06.21	COPYRIGHT © 1996 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

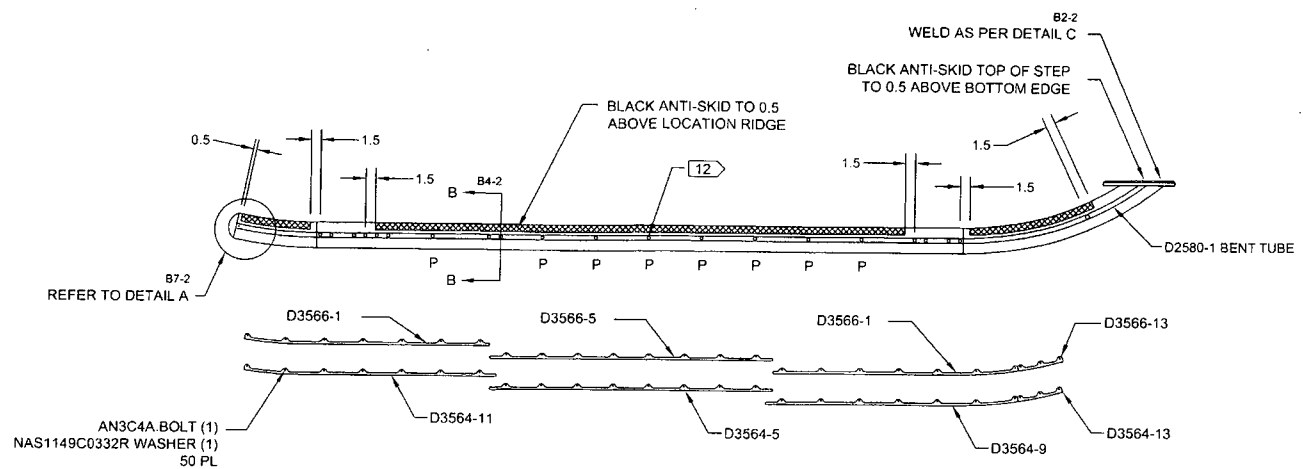
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

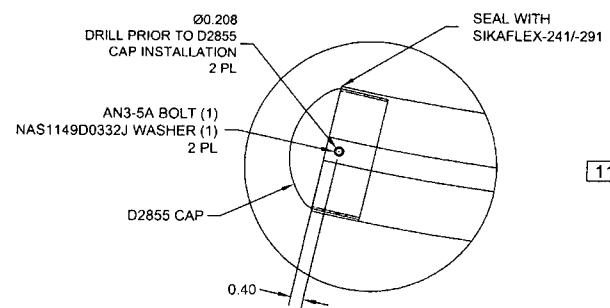
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

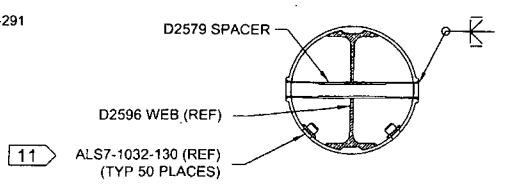


D2580-041 ASSEMBLY DETAIL

DETAIL A C7-2
SCALE 5X

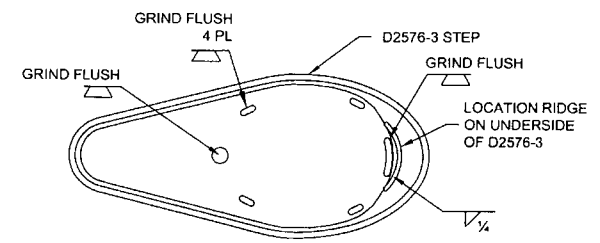


SECTION B-B D5-2
SCALE 5X



- AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. CHAMFER HOLE 0.050 X 45°
 2. INSERT D2579 SPACER (20 PLACES)
 3. WELD INTO PLACE AND GRIND FLUSH
 4. C'BORE D2579 SPACER TO Ø0.437, X 1.00 DEEP

DETAIL C D3-2
SCALE 5X



DESIGN	#	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	10	DRAWING NO.	REV. E
MFG. APPR.	11	D2580	SHEET 2 OF 8
APPROVED	12	TITLE	SCALE
DE APPR.	13	205 SKIDTUBE ASSEMBLY	NTS
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81846

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RELEASED
2011-08-29

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

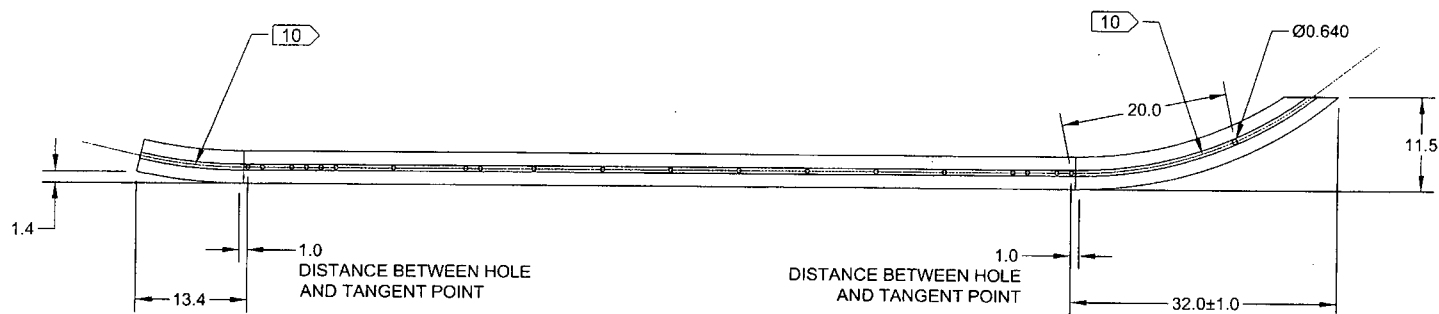
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

81846



D2580-1 BENT TUBE
(MAKE FROM D2580-101 TUBE)

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2011-08-28

DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO.	REV. E
CHECKED	RF	D2580	SHEET 3 OF 8
MFG. APPR.	RF	TITLE	SCALE
DE APPR.	RF	205 SKIDTUBE ASSEMBLY	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



RELEASED
2011-08-29

2011-08-29

DESIGN	4	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	10	DRAWING NO.	REV. E
MFG. APPR.	10	D2580	SHEET 4 OF 8
APPROVED	10	TITLE	SCALE
DE APPR.	4	205 SKIDTUBE ASSEMBLY	
DATE	11.06.21	NTS	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

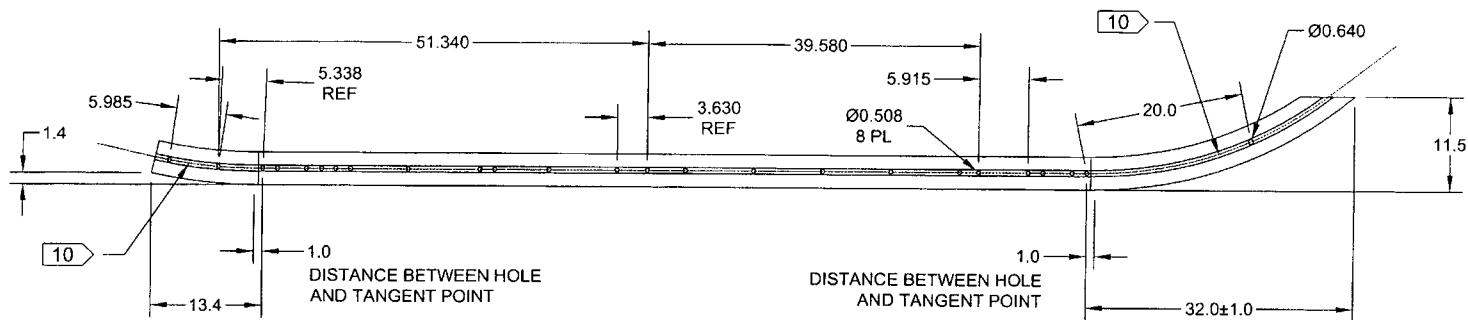
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

81846



D2580-5 BENT TUBE
(MAKE FROM D2580-101 TUBE)

DEO ATTACHED

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2011-08-29

DESIGN	#	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	NO	DRAWING NO.	REV. E
MFG. APPR.	NO	D2580	SHEET 5 OF 8
APPROVED	NO	TITLE	SCALE
DE APPR.	NO	205 SKIDTUBE ASSEMBLY	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

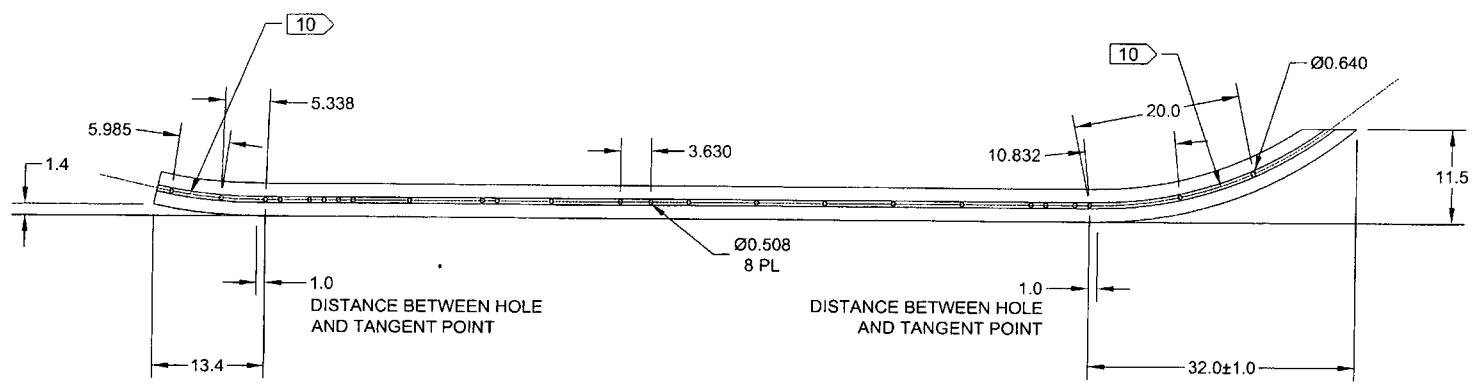
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

01846



D2580-7 BENT TUBE
(MAKE FROM D2580-101 TUBE)



DEO ATTACHED
RELEASED
2011-08-29
ANN

DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	RF	DRAWING NO.	REV. E
MFG. APPR.	RF	D2580	SHEET 7 OF 8
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	205 SKIDTUBE ASSEMBLY	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

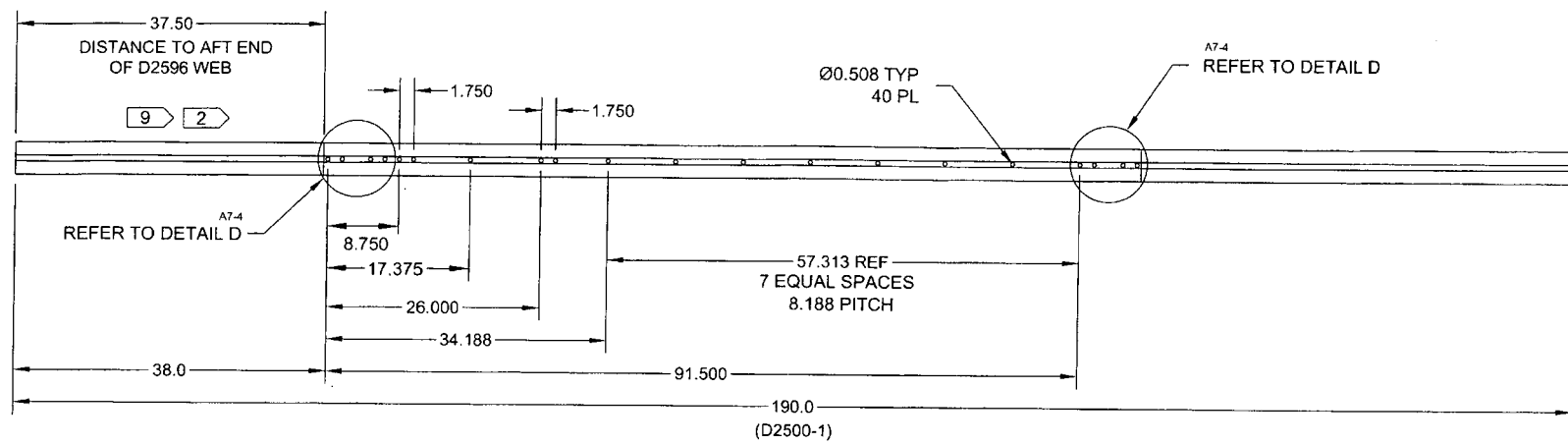
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

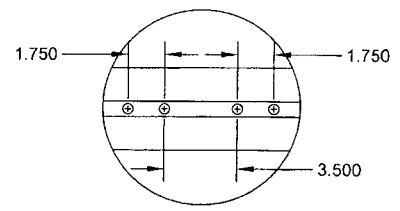
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

21246



D2580-101 TUBE



DETAIL D D3-4
C7-4
SCALE 5X

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RELEASED
2011-08-29

DESIGN	#	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	10	DRAWING NO.	REV. E
MFG. APPR.	10	D2580	SHEET 8 OF 8
APPROVED	10	TITLE	SCALE
DE APPR.	10	205 SKIDTUBE ASSEMBLY	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DRAWING NO. D2580	TITLE 205 SKIDTUBE ASSEMBLY	REV. E	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D2580-E-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>UP</i>	CHECKED <i>ASS</i>	MFG. APPR. <i>ER</i>	APPROVED <i>HA</i>	DE APPR. <i>HA</i>		
DATE 11.12.13	DATE 11.12.13	DATE 11.12.13	DATE 11.12.13	DATE 11.12.13		

PURPOSE:

CHANGE ALL C'BORED WELDED CROSSBOLT SPACERS TO SWAGED SPACERS

CHANGE:

PARTS LIST IS AMENDED AS FOLLOWS:

WAS

QTY	QTY	QTY	PART NUMBER	DESCRIPTION
-041	-045	-047		
20	24	25	D2579	CROSS BOLT SPACER

IS

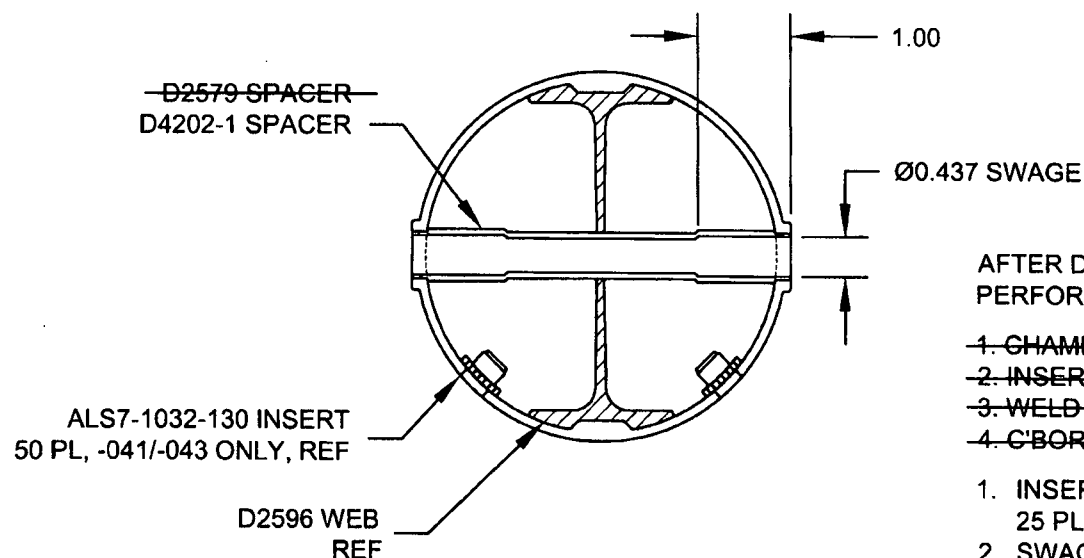
	4		* D2579	CROSS BOLT SPACER
20	20	25	D4202-1	SPACER

* FOR -045 SKIDTUBE ONLY:

WELD 4X D2579 SPACERS PER DWG
IN LOCATIONS MARKED "NO C'BORE".
REF SHEET 4 OF DWG.

SECTION B-B, SECTION F-F, & SECTION I-I ARE AMENDED AS FOLLOWS
FOR ALL HOLES THAT WERE ORIGINALLY C'BORED:

RELEASED
2011-12-14



AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:

1. CHAMFER HOLE 0.060 X 45°
2. INSERT D2579 SPACER (20 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

1. INSERT D4202-1 SPACER, 20 PL (-041) OR 20 PL (-045) OR 25 PL (-047)
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002
3. TRIM / GRIND FLUSH PER QSI 002

SECTION B-B, F-F, I-I
NOT TO SCALE

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries